позволяет удалить из нитратных растворов значительную часть ТБФ. Степень извлечения трибутилфосфата для различного типа мембран составила 82,4-90,5%. Наибольшая степень очистки достигнута с использованием мембраны 1 kD. Стоит отметить, что благодаря возможности организации очистки способом нанофильтрации без применения химических реагентов (коагулянты, флокулянты) при промышленном использовании данной технологии извлеченный ТБФ может быть возвращен в производственный цикл.

INVESTIGATION OF LIQUID-LIQUID EQUILIBRIUM IN SPLITTING SYSTEMS CONTAINING BIOFUEL COMPONENT

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In this work we obtained data on the liquid-liquid equilibrium in ternary and quaternary splitting systems containing biofuel component – n-butanol. Namely, in systems acetic acid – n-butanol – water, acetic acid – n-butyl acetate – water and acetic acid – n-butanol – n-butyl acetate – water at 45°C and atmospheric pressure. The experimental study was carried out by Gas chromatography method analysis.

Biofuel is one of the actively developing alternative energy sources. But at that moment, this production is non-optimized and requires an excessive amount of raw materials. However, the biofuel production can be optimized by scientifically sound methods and taking into account basic thermodynamic and kinetic positions. The main components in the preparation of biofuel are vegetable oils. As this composition is rather complicated, the object of study was chosen fundamental model system containing biofuel component – n-butanol [1]. Namely, acetic acid – n-butanol – n-butyl acetate – water.

This investigation is devoted the study of liquid-liquid equilibrium (LLE) in splitting ternary systems acetic acid – n-butanol – water, acetic acid – n-butyl acetate – water and quaternary systems acetic acid – n-butanol – n-butyl acetate – water with fixed ratio of n-butanol and n-butyl acetate. The experiment was conducted at 45°C and atmospheric pressure. For the study of LLE in quaternary systems was prepared 5 solutions with fixed ratio of n-butanol and n-butyl acetate: 3-1, 2-1, 1-1, 1-2, 1-3. Before the experiment, all reagents were checked for purity by Gas chromatography method.

The experimental study of LLE was carried out by Gas chromatography method analysis for analytical determination of phase compositions. LLE data were obtained for aforementioned systems and presented in Gibbs-Rozeboom triangles.

1. Samarov A., Toikka M., Toikka A., Fluid Phase Equilibria, 385, 129–133 (2015).